

**CATHETER SYSTEM FOR VASCULAR RE-ENTRY FROM A SUB-INTIMAL  
SPACE**

**ABSTRACT OF THE DISCLOSURE**

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A catheter system and corresponding methods are provided for accessing a blood vessel true lumen from a sub-intimal plane of the vessel. The catheter system includes visualization elements for determining the orientation of the true lumen with respect to the sub-intimal plane at an identified entry site from a position in the sub-intimal plane. The entry site is distal to a chronic total occlusion (CTO). The catheter system also includes a system for physically securing tissue of the sub-intimal plane at the entry site to the catheter system. The attaching system reduces or eliminates catheter float within the sub-intimal space. The catheter system further includes re-entry devices to establish and maintain a path from the sub-intimal plane back into the vessel true lumen.